

What is claimed is:

- 1 1. A method of provisioning a packet network for handling incoming traffic
2 demands, said packet network comprising record collectors that generate ingress
3 and egress files which are used to determine traffic patterns for routing flows
4 from a source to a destination in the packet network, the method comprising the
5 steps of:
6 receiving configuration files from a capacity planning server, said configuration
7 files comprising parameters in which flow records are to be analyzed during a
8 measurement interval;
9 receiving flow records from access routers;
10 processing the flow records based on the parameters provided in the configuration
11 files;
12 generating ingress and egress files for each flow record received during the
13 measurement interval; and
14 periodically notifying the capacity planning server when ingress and egress files
15 for the measurement interval are available for upload;
16 uploading the ingress and egress files to the capacity planning server;
17 determining whether the packet network has adequate capacity based on the
18 traffic patterns established from the uploaded ingress and egress files; and
19 if the capacity is not adequate, rerouting future flows through the packet network
20 in order to establish adequate capacity.
- 1 2. The method of claim 1 wherein the configuration files comprise a start
2 time and duration for the measurement interval.
- 1 3. The method of claim 2 wherein the configuration files comprise
2 parameters that define the measurement interval as one or more intervals that
3 occur at a designated day and time every week.
- 1 4. The method of claim 2 wherein the configuration files comprise
2 parameters that define the measurement interval as a designated date and time.

- 1 5. The method of claim 2 wherein the configuration files comprise
2 parameters that specify measurements to be generated on a continuous basis.
- 1 6. The method of claim 2 wherein the configuration files are expressed in
2 Extensible Markup Language (XML).
- 1 7. The method of claim 1 wherein the configuration files include a name and
2 address for the capacity planning server, a name and address for each record
3 collector, and a name and loopback address for each access router.
- 1 8. The method of claim 7 wherein the configuration files are expressed in
2 Extensible Markup Language (XML).
- 1 9. The method of claim 1 wherein the configuration files identify external
2 interfaces for each access router.
- 1 10. The method of claim 9 wherein the configuration files identify a virtual
2 private network (VPN) that is associated with each external interface.
- 1 11. The method of claim 9 wherein the configuration files are expressed in
2 Extensible Markup Language (XML).
- 1 12. The method of claim 1 wherein each record collector comprises software
2 to receive flow records exported by access routers in a same service node.
- 1 13. The method of claim 12 wherein each record collector receives flow
2 records for incoming and outgoing flows on external interfaces of access routers.
- 1 14. The method of claim 1 wherein each record collector determines if a flow
2 record is received within the measurement interval by comparing a start time and

3 end time of the measurement interval with a time corresponding to the receipt of
4 the flow record.

1 15. The method of claim 1 wherein each record collector examines an
2 incoming interface index and an outgoing interface index in a flow record to
3 determine if the flow record is for an incoming or outgoing flow.

1 16. The method of claim 15 wherein each record collector creates an ingress
2 record for an incoming flow.

1 17. The method of claim 16 wherein an ingress record comprises source
2 address, destination address, type-of-service, byte count, packet count, and egress
3 router count.

1 18. The method of claim 17 wherein the egress router count in the ingress
2 record is initialized to zero.

1 19. The method of claim 1 wherein each record collector stores ingress
2 records generated during the measurement interval in ingress files.

1 20. The method of claim 19 wherein each record collector creates separate
2 ingress files for each access router associated with the record collector.

1 21. The method of claim 19 wherein each record collector creates separate
2 ingress files for each access router associated with the record collector and for
3 each virtual private network (VPN) to which each access router is connected.

1 22. The method of claim 15 wherein each record collector creates an egress
2 record for an outgoing flow.

1 23. The method of claim 22 wherein the egress record contains source address
2 and destination address.

1 24. The method of claim 22 wherein the egress record contains source
2 address, destination address, and type-of-service.

1 25. The method of claim 22 wherein each record collector stores the egress
2 records generated during the measurement interval in egress files.

1 26. The method of claim 25 wherein each record collector creates separate
2 egress files for each access router associated with the record collector.

1 27. The method of claim 25 wherein each record collector creates separate
2 egress files for each of its access routers for each virtual private network (VPN) to
3 which the access router is connected.

1 28. The method of claim 1 wherein the step of periodically notifying the
2 capacity planning server when ingress and egress files for the measurement
3 interval are available for upload further comprises including total byte and packet
4 counts for each ingress and egress file.